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Posttraumatic Growth in the Context of Grief: Testing the Mindfulness-to-Meaning Theory

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A dissertation submitted in partial fulfillment

Of the requirements for the degree of

Doctor of Philosophy

In

Clinical Psychology

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Abstract

The current study utilized a cross-sectional survey design to examine the role of mindfulness and meaning-making in the development of posttraumatic growth following the death of a loved one. Participants were 232 adults (77.2% female, 85% Caucasian), ages 18 to 67 years old ($M = 35.7$, $SD = 12.5$) who had experienced the death of a loved one in the last 10 years. Preliminary analysis indicated significant positive bivariate correlations between mindfulness and meaning making ($r = .39$) and mindfulness and posttraumatic growth ($r = .20$), as well significant negative bivariate correlations between mindfulness and traumatic grief ($r = -.30$) and meaning-making and traumatic grief ($r = -.76$). A moderated mediation analysis was conducted to assess 1) the conditional direct effect of mindfulness on posttraumatic growth as a function of traumatic grief and 2) the conditional indirect effect of mindfulness on posttraumatic growth through meaning making as a function of traumatic grief. Results were partially consistent with the proposed hypotheses. The direct effect of mindfulness increased as traumatic grief increased and only became significant at high levels (+ 1 SD) of traumatic grief [$b(SE) = .53(.15)$, $p < .01$]. The indirect effect of mindfulness on posttraumatic growth through meaning-making decreased as traumatic grief increased and was only significant at low levels (-1 SD) of traumatic grief [$b(SE) = .10(.06)$, $p < .01$] and average levels of traumatic grief [$b(SE) = .07(.04)$, $p < .01$]. Overall, results highlight the multidimensional utility of mindfulness in facilitating adaptive responses to the death of a loved one. Clinical applications and methodological limitations of the current study are reviewed, as well as directions for future research.

Chapter I: Introduction

The purpose of the current study is to utilize the Mindfulness-to-Meaning-Theory (MMT; Garland, Farb, Goldin, & Fredrickson, 2015) to build on our understanding of the underlying personality traits and cognitive processes which facilitate posttraumatic growth in the context of grief. The death of a loved one is generally regarded as one of the most stressful and painful human experiences. As people vary in their ability to cope with stressors, psychological reactions to loss vary in symptom type, intensity, and duration (Crunk, Burk, & Robinson, 2017).

Although the majority of people naturally return to a state of normal psychological functioning within 12 months after the loss, an estimated 10-15% of individuals get stuck in prolonged and dysfunctional distress, referred to as *complicated grief* (CG; Horowitz, Bonanno, & Holen, 1993; Shear et al., 2011), prolonged grief disorder (PDG; Prigerson, Vanderwerker, & Maciejewski, 2008) or persistent complex bereavement disorder (PCBD; American Psychiatric Association, 2013). Individuals who experience prolonged and dysfunctional reactions to the death of a loved one are at an increased risk for a range of negative psychological outcomes compared to individuals who experience more natural and adaptive grief responses (e.g. Prigerson, 1997). However, in addition to prolonged and dysfunctional reactions, research has also revealed the potential to experience posttraumatic growth (PTG), or positive psychological changes, following the death of a loved one (e.g., Lumb, Beaudry, & Blachard, 2017; Yilmaz & Zara, 2016). These different trajectories following the death of a loved one highlight the need for research to build on existing bereavement theories and identify factors which facilitate positive trajectories following death-related losses.

Models of posttraumatic growth in the context of grief focus on the interaction between death-related circumstances, individual and personality characteristics, and cognitive processes and coping styles. The current study will explore the relationships between dispositional mindfulness, meaning making, and posttraumatic growth specifically in the context of having lost a loved one. Dispositional mindfulness refers to an individual's general propensity towards paying attention to the present moment in a nonjudgmental way (Brown & Ryan, 2003; Kabat-Zinn, 1990) and meaning-making reflects the degree to which an individual has integrated an experience into a coherent self-narrative.

Given that mindfulness and meaning-making have been consistently found to promote PTG following a wide range of stressful life events (Hanley, Garland, & Tedeschi, 2017), I hypothesize that dispositional mindfulness will predict higher levels of PTG in the context of having experienced the death of a loved one. Furthermore, based upon MMT research and the Reconstruction of Meaning model of grief (Neimeyer, 2005), which posits that successful grief adaption is contingent upon being able to find meaning in the grief experience and integrate it into a reconstructed self-narrative, meaning-making is hypothesized to mediate the relationship between dispositional mindfulness and posttraumatic growth, such that the effect of mindfulness on PTG will be partially explained by an individual's ability to find meaning in the loss. Lastly, because trauma is a necessary precursor to posttraumatic growth and not all death-related losses are inherently traumatic (Tedeschi & Calhoun, 1995), it is hypothesized that the mediation model will be moderated by how traumatic the death was experienced, such that the relationship between mindfulness and meaning-making, as well as the direct effect of mindfulness on posttraumatic growth will be stronger for death-related losses that were experienced as more

traumatic. As such, the following chapter will provide an integrated review of the relevant theory and research related to grief, posttraumatic growth, mindfulness, and meaning-making.

Chapter II: Literature Review

Grief Trajectories

The death of a loved one is a painful, but universal human experience. Despite its universality, the impact of a significant loss on an individual can have profound effects which follow differing but overlapping trajectories. While common initial reactions to loss include longing for the deceased, feelings of sadness and emptiness, anger, and a reduced interest in engaging with the world (Neimeyer, Burke, Mackay, & van Dyke Stringer, 2010; Prigerson et al., 2008), most individuals return to normal functioning following a limited period of mourning. However, a subset of bereaved individuals become stuck in prolonged and dysfunctional distress, characterized by intrusive preoccupation, avoidance, and intense negative emotions relative to the death of the loved one (Bonanno, Wortman, & Nesse, 2004). Prevalence rates for prolonged or dysfunctional reactions to grief are estimated to range from 9.8% in individuals who experienced a non-violent/non-traumatic loss (Lundorff, Holmgren, Zachariae, Farver-Vestergaard, & O'Connor, 2017) to as high as 15% in those who experienced the violent or traumatic death of a loved one (Prigerson, 2004). Individuals who experience maladaptive reactions to the death of a loved one are at an increased risk for a variety of negative physical and mental health outcomes (Prigerson et al., 1997; Prigerson et al., 2008), and some researchers have argued that the negative effects of grief may be prolonged and impairing enough in some individuals to qualify as a psychiatric disorder, distinct from related disorders such as depression or PTSD (Prigerson & Jacobs, 2001).

Horowitz and colleagues (1993) proposed the first diagnostic criteria for a grief or bereavement related disorder, first termed *pathological grief* and then later *complicated grief* (CG; Horowitz, Bonanno, & Holen, 1993; Horowitz et al., 1997). Following Horowitz and colleagues' conceptualization, several research groups have used different terminology (e.g. pathological, traumatic, prolonged, chronic, etc.) and diagnostic criteria in their conceptualization of disordered grief (Wagner & Maercker, 2010). Most notably, Prigerson and colleagues adopted the term *traumatic grief* after their research indicated the centrality of separation and traumatic distress in their conceptualization of disordered grief. This was later replaced with the term *prolonged grief* and became the basis for prolonged grief disorder (PGD) to avoid confusion with PTSD (Prigerson et al., 1995, 1997, 1999, 2008). The DSM-IV proposed persistent complex bereavement disorder (PCBD) as a compromise between the conceptualizations and diagnostic criteria for PGD and CG, later placing PCBD in section III of the DSM-5 as a disorder requiring further study (APA, 2003).

Regardless of terminology, many theoretical approaches have been applied within the bereavement literature in an attempt to understand what contributes to either adaptive or maladaptive forms of grieving. Drawing on research in bereavement and trauma, as well as cognitive models of adaption to stress, Boelen et al.'s (2006) cognitive-behavioral model of bereavement proposes three core processes through which problematic grief reactions occur. They include (a) a failure to integrate the loss into autobiographical memory; (b) the development or reactivation of negative global beliefs about the self, world, or future; and (c) the avoidance of internal and external stimuli that evoke the pain of the loss (Boelen, van den Hout, & van den Bout, 2007). Complementary to the cognitive-behavioral model of grief are constructivist theories of grief which view loss as a disruption in the coherence of an individual's

self-narrative (Neimeyer, 2005). Grief trajectories, thus, depend both on how significantly a loss invalidates the core beliefs and assumptions on which an individual's self-narrative is based, and the success with which an individual is able to find meaning in the grief experience and integrate it into a reconstructed self-narrative (Neimeyer, 2006). When unsuccessful in this process, complicated grief can ensue; however, when successful, the bereaved individual may experience posttraumatic growth, reflected in areas such as increased connectedness and compassion for others, a deeper appreciation for life, and a stronger sense of self (Calhoun, Tedeschi, Cann, & Hanks, 2010; Neimeyer, Prigerson, & Davies, 2002).

Given the different trajectories of grief, in addition to the high likelihood of experiencing a death-related loss at some point across an individual's life, there is a need for research to build on current theoretical models and further identify both risk and protective factors for adaptive grief responses that are amenable to intervention and can inform prevention. In particular, this study focuses on identifying individual differences in cognitive processes and coping strategies which may promote posttraumatic growth in response to death-related losses. As such, in the following sections, the concept of PTG and its relationship to grief will be reviewed.

Posttraumatic Growth. The concept of posttraumatic growth (PTG) refers broadly to positive psychological changes that an individual may experience as a result of having to cope with a traumatic or highly challenging event (Calhoun & Tedeschi, 2001). Although PTG is a relatively new construct in the psychological literature, the phenomenon of distress and suffering catalyzing positive change can be found within different religions, philosophies, and literary works extending back as far as the ancient Hebrews and Greeks (Tedeschi & Calhoun, 1995). Posttraumatic growth depicts an experience that goes above and beyond surviving a challenging experience, and instead reflects a form of self-improvement that surpasses an individual's level

of development before the traumatic event occurred. PTG is most commonly reflected in positive changes experienced in five domains: new possibilities, personal strength, appreciation for life, spiritual/existential change, and relating to others (Tedeschi & Calhoun, 1996). New possibilities refers to opportunities or new personal paths that wouldn't have arisen without experiencing the traumatic event. Changes in personal strength refers to the sense of feeling stronger or more resilient than one had previously thought, and appreciation for life reflects an increased feeling of gratitude towards being alive, often times reported as "being so lucky" (p. 6; Tedeschi & Calhoun, 2004). In terms of the domain of relating to others, changes often reflect more intimate and meaningful connections and feeling a deeper compassion for the suffering of others (Tedeschi & Calhoun 1996; Tedeschi & Calhoun, 2004). Lastly, spiritual/existential changes reflect broadly the fact that "out of spiritual doubt, there can emerge a deeper faith" (p. 6; Tedeschi & Calhoun, 2004). Given the importance of these five domains in human functioning, it is unsurprising that PTG is associated with greater life satisfaction (Mols, Vingerhoets, Coebergh, & van de Pollfranse, 2009), happiness (Leloirain, Bonnaud-Antignac, & Florin, 2010), improvements in health values (McDiarmid, Taku, & Phillips, 2017), and reports of enhanced of physical and psychological well-being (Sawerys, Ayers, & Field, 2010).

Although the term *posttraumatic growth* implies the necessity of a trauma to occur, the concept has not been limited by the DSM-5's definition of trauma. While the DSM-5 defines trauma as exposure to actual or threatened death or sexual violence through (a) direct experience, (b) witnessing the event in person occurring to others, (c) learning that such an event happened to a close family member or friend, or (d) experiencing repeated or extreme exposure to aversive details regarding the event (APA, 2013), modern theory conceptualizes trauma on a continuum rather than an all-or-none dichotomy (Breslau & Kessler, 2001). Janoff-Bulman (1989) described

traumatic events as those that shatter an individual's "assumptive world," a collection of deep-rooted beliefs that most human beings hold about the benevolence of the world and the worthiness of the self. Similarly, Tedeschi and Calhoun (2004) have compared traumatic experiences to that of an earthquake, with the magnitude of a trauma akin to the degree to which an individual is forced to question his or her core assumptions about safety, predictability, identity, and meaning. Based on this conceptualization of trauma and supporting research, any highly challenging event that disrupts an individual's core beliefs can catalyze posttraumatic growth. In a recent study comparing the presence of PTG in individuals who experienced DSM-5 Criterion-A traumatic stressors (e.g. sexual assault, combat, etc.) versus individuals who experienced non-Criterion A traumatic stressors (e.g., divorce, death of a grandparent, etc.), the researchers found no significant difference between groups (Silverstein, Lee, Witte, & Weathers, 2017). Indeed, a large body of evidence supports the notion that posttraumatic growth can result from a wide range of highly stressful events not restricted to the DSM-5's definition of trauma, including life-threatening and chronic illnesses (e.g. Cordova, Cunningham, Carlson, & Andrykowski, 2001), transportation accidents (Joseph, Williams, & Yule, 1993), and house fires (Thompson, 1985).

Both theory and research support the notion that PTG is not contingent upon exposure to the DSM-5's definition of trauma; however, this does not imply that PTG can result from any bad experience. Rather, only those that impact an individual to such an extent that it shatters one's fundamental beliefs about one's self and world, such as one's identity, purpose, or future (Tedeschi & Calhoun, 2004; Tedeschi, Calhoun, & Cann, 2007). In fact, both cross-sectional and longitudinal studies demonstrate that the more an event disrupts an individual's core beliefs, the greater levels of psychological distress and symptoms of posttraumatic stress, as well as

likelihood of endorsing posttraumatic growth (e.g. Cann et al., 2010; Lindstrom, Cann, Calhoun, Tedeschi, 2013). However, as Tedeschi and Calhoun (2004) note, growth does not directly result from this shattering of core beliefs, but rather develops through the psychological distress and struggle with one's new reality in the aftermath of the event.

In addition to the necessity of an event shattering an individual's assumptive worldview, Tedeschi and Calhoun's (2004) model of posttraumatic growth highlights the importance of pre-existing personality characteristics and the emotional and cognitive processes following the trauma. With regard to personality characteristics, in the development of the Post Traumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) the researchers found positive correlations between posttraumatic growth and the openness to experience and extraversion dimensions of the Big Five. More specifically, the sub-facets found to be most strongly related to PTG were activity, positive emotions, and openness to feelings. In addition to the Big Five personality dimensions, the researchers found posttraumatic growth to be positively associated with optimism. In Tedeschi and Calhoun's (2004) model of posttraumatic growth, personality characteristics, such as optimism and openness to experience, are thought to influence the adaptiveness of the emotional and cognitive processes needed for posttraumatic growth to occur following the traumatic event. In their conceptualization, posttraumatic growth hinges on an individual's ability to relinquish and disengage from their previously held worldview and persevere in working through the emotional and cognitive processes related to reconstruction of cognitive schemas, seeking meaning of the traumatic event, and making sense of and integrating the event into one's personal narrative. The next section will focus on the theory and research of PTG in the context of grief.

PTG and Grief. As the death of a loved one has the potential to cause significant psychological distress and pose challenges for adjusting to one's new reality without the deceased, the struggle to cope with death can provide a fertile context for experiencing posttraumatic growth. Models of posttraumatic growth in the context of grief focus on the interaction between death-related circumstances, pre-existing personality characteristics, and cognitive processes/coping styles (Calhoun et al., 2010; Tedeschi & Calhoun, 1995). With regard to death-related circumstances, theorists generally focus on the degree to which the death challenges or shatters an individual's previously held worldview (Calhoun et al., 2010; Tedeschi & Calhoun, 1995). While emotional distress is generally considered inherent in the grieving process regardless of the circumstances surrounding the death, if the death shatters previously held assumptions about how the world works and the role of one's self within it, psychological distress may be initially amplified as the individual struggles to reconstruct his or her world view and sense of identity (Calhoun et al., 2010).

Particularly with deaths that are violent or unexpected, the bereaved are confronted with the fact that they are vulnerable to losses that are unpredictable, sudden, and sometimes tragic and devastating. Research which demonstrates that a "natural death" at the end of a long life tends to be easier to cope with than deaths which are unexpected speaks to the importance of assumptive worldviews and the circumstances surrounding the loss (Lehman, Wortman, & Williams, 1987). If a death is inconsistent with an individual's worldview, more emotional and cognitive processing may be required to make sense of and integrate the event into one's personal narrative; and thus, theoretically the more likely PTG is possible (Calhoun & Tedeschi, 2001). Consistent with this model of posttraumatic growth, Yilmaz and Zara (2016) found that traumatic perception of loss positively predicted posttraumatic growth in adults who had lost

either a first degree relative or a romantic partner. Relatedly, research has shown that those who are bereaved by a violent loss (i.e. accident, suicide, homicide) report higher levels of both psychological distress and posttraumatic growth than those bereaved by a nonviolent death (Currier, Mallot, Martinez, Sandy, & Neimeyer, 2013). Taken together with the research supporting the centrality of disruption in core beliefs in predicting PTG across a broad range of highly stressful events (e.g. Lindstrom et al., 2013), these studies highlight that posttraumatic growth rests on the experience of the death as traumatic.

Aside from the traumatic nature of the death, other death-related circumstances which increase the likelihood of experiencing posttraumatic growth include time since loss (Levi-Belz, 2015, 2017), perceived closeness to the deceased (Levi-Belz, 2017), and greater social support (Levi-Belz, 2015; Yilmaz & Zara, 2015). While death related circumstances have aided our ability to predict who will experience posttraumatic growth in the context of grief, they provide limited clinical utility in being able to guide effective interventions that help foster posttraumatic growth in the bereaved. On the other hand, research which focuses on underlying cognitive processes and coping styles which are involved in the development of PTG provide valuable insight into grief-related factors which may be amenable to treatment.

According to Tedeschi and Calhoun's (2004) model of posttraumatic growth, rumination is a key cognitive process that plays a role in the reconstruction of one's worldview. Although early studies suggested that rumination leads to depression and psychological distress (Sengerstrom, Tsao, Alden, & Craske, 2000), it is now recognized that rumination, if simply meaning repetitive thinking, can be divided into both constructive and unconstructive forms (Sengerstrom, Stanton, Alden, & Shortridge 2003; Watkins, 2008). Unconstructive rumination, also referred to as intrusive rumination, refers to the kind of repetitive thinking that perpetuates a

constricted cycle of negative thoughts and emotions (Calhoun et al., 2010). This type of rumination is typically uncontrollable and unwanted, and has been associated with PTSD symptoms (e.g., Michael, Halligan, Clark, & Ehlers, 2007). On the other hand, constructive or deliberate rumination, refers to repetitive thinking that is aimed at problem solving or making sense or something in an individual's experience (Martin & Tesser, 1996). Thus, in the context of posttraumatic growth, deliberate rumination reflects an individual cognitively working to make sense of the event that has shattered their sense of self or worldview. It is this kind of rumination that helps move an individual towards rebuilding a functional worldview and a coherent sense of identity (Calhoun et al., 2010). While it is normal to experience intrusive rumination immediately following the loss of a significant other, deliberate rumination has been linked with posttraumatic growth across a wide range of studies (Taku, Cann, Calhoun, & Tedeschi, 2008; Taku, Cann, Tedeschi, & Calhoun, 2009; Lindstrom et al., 2013). In fact, Taku et al. (2009) found that intrusive rumination soon after the death and more recent deliberate rumination were both associated with posttraumatic growth. In other words, intrusive rumination is not inherently maladaptive and may actually coexist and provide the necessary catalyst to engage in more deliberate rumination. It is when individuals fail to rebuild their assumptive worldviews that they may get stuck and experience prolonged intrusive rumination and psychological distress (Calhoun et al., 2010). In essence, posttraumatic growth may in part hinge on an individual's capacity to transform intrusive rumination into more deliberate rumination as the grieving process progresses. This may be because deliberate rumination is believed to allow for more positive reappraisal (Tedeschi & Belvins, 2015), which is the tendency to reframe aversive events as beneficial or meaningful in some way (Lazarus & Folkman, 1984). Indeed, recent research as provided support for the relationship between deliberate rumination and

positive reappraisal in the context of posttraumatic growth. Cárdenas Castro and colleagues (2019) explored deliberate rumination and positive reappraisal as serial mediators between the life impact of a violent event and posttraumatic growth. They found that the relationship between deliberate rumination and posttraumatic growth was significant, but not as strong as when achieved through the serial mediator, positive reappraisal. Additionally, positive reappraisal did not emerge independently as a significant mediator between the impact of the life event and posttraumatic growth unless it was achieved through deliberate rumination (Cárdenas Castro, Martinez, & Abaraca, 2019).

Summary. In sum, while the death of a loved one can be one of the most painful and challenging human experiences, the psychological struggle to cope and make sense of an individual's new reality without the deceased can provide a fertile ground for posttraumatic growth. Models of posttraumatic growth specifically in the context of grief have historically focused on death-related circumstances, individual and personality characteristics, and cognitive processes and coping styles. As the shattering of core beliefs about oneself and the world is a fundamental precursor to posttraumatic growth, the more death-related circumstances force an individual to confront previous assumptive worldviews, the more likely posttraumatic growth will occur (Calhoun et al., 2010). In particular, deaths that are perceived as traumatic, unexpected, or violent are associated with higher levels of both psychological distress and posttraumatic growth (Currier et al., 2013; Yilmaz & Zara, 2016). However, experiencing the death as traumatic is a necessary, but not sufficient condition for posttraumatic growth to occur.

A number of other factors have been identified that increase the likelihood of posttraumatic growth occurring, however, many of these death-related circumstances and individual characteristics are not amenable to treatment (e.g., gender, relationship to deceased,

etc.). Rather, it is the cognitive processes that individuals use to cope with death which provide plausible avenues for clinical intervention and have been suggested to be most central to posttraumatic reactions and the promotion of posttraumatic growth (Garland et al., 2015; Joseph, Murphy, & Regel, 2012; Tedeschi & Calhoun, 2004). In particular, both intrusive and deliberate rumination have been identified as key processes in the cognitive work needed to promote posttraumatic growth (e.g. Tedeschi & Calhou, 2004). More specifically, the ability to transform intrusive rumination into deliberate rumination as the grieving process progresses may underlie how individuals are able to reconstruct their worldviews and grow from their loss (Taku, et al., 2008; Taku, et al., 2009; Tedeschi & Belvins, 2015).

Given that research suggests that both intrusive and deliberate rumination are fundamental cognitive processes involved in either the impediment or facilitation of posttraumatic growth following the death of a loved one, it is now necessary for research to investigate plausible mechanisms underlying the transformation of intrusive rumination into more constructive deliberate rumination. Drawing on the recent *mindfulness-to-meaning theory* (MMT), Tedeschi and Belvins (2015) proposed that MMT may accurately capture the transformation of intrusive rumination to deliberate rumination. MMT asserts that by

“modifying how one attends to cognitive, affective, and interoceptive sequelae of emotion provocation, mindfulness introduces flexibility into the creation of autobiographical meaning, stimulating the natural human capacity to positively reappraise adverse events and savor the positive aspects of experience” (Garland et al., 2015, p. 296).

Although there are several studies which support the applicability of the MMT framework for understanding posttraumatic growth, the current study addresses a gap in the literature by

applying MMT to posttraumatic growth specifically in the context of grief. As such, I theorize that mindfulness will positively predict PTG relative to having experienced the death of a loved one. Thus, the following sections will review the mindfulness literature relevant to this research, providing justification for the inclusion of mindfulness as a predictor of posttraumatic growth among a bereaved population.

Mindfulness Theory and Research

Over the past several decades, there has been an exponential increase in the theorizing, research, and application of mindfulness within the context of western medicine and the behavioral sciences (Hart & Ivztan 2013). Although a relatively new concept in the West, mindfulness has been an important concept in Eastern and Buddhist traditions for roughly 2,500 years (Kabat-Zinn, 2003; Speca, Carlson, Goodey, & Angen, 2000; Mitmansgruber, Beck, Hofer, & Schubler, 2007). Translated from the Tibetan phrase *drepana*, the term *mindfulness* means to *become conscious* (Mingyur-Rinpoche, 2009). Within Buddhism, mindfulness is believed to play a central role in the eight-fold path designed to lead to the cessation of personal suffering (Thera, 1962). In the context of western medicine and the behavioral sciences, mindfulness is also increasingly gaining recognition for its role in alleviating suffering or at least changing how one relates to it. In contemporary psychology, mindfulness is most commonly defined as a state of awareness in which one intentionally pays attention to present-moment experience without judgment (Kabat-Zinn, 1990). More broadly, mindfulness is conceptualized as a particular “state of awareness” or “quality of consciousness.”

Consciousness, or the subjective sense of knowing, encompasses both awareness and attention (Brown & Ryan, 2003, Siegel, 2018). While *awareness* refers to the continual and open monitoring of both internal and external stimuli, *attention* is the focusing of awareness on a

particular stimulus, creating increased sensitivity to a particular aspect of experience (Brown & Ryan, 2003; Westen, 1999). Siegel (2018) uses the metaphor of a wheel to describe consciousness and the relationship between awareness and attention. In his wheel of consciousness, awareness is represented by the “hub” of the wheel and attention is represented by a “spoke” which connects the hub of awareness to all of the possible “knowns” on the rim of the wheel (e.g. sensory experience, internal bodily sensations, mental activities, etc.). Thus, the processes of awareness and attention are interconnected, such that attention continually directs what becomes known in awareness. Although attention and awareness are considered constant features of normal functioning and waking states of consciousness, mindfulness has been described as more fully “waking up” (Siegel, 2007, p. 5), such that attention is directed towards the present moment, resulting in an enhanced awareness of current experience occurring within and outside of mind and body (Bishop et al., 2004). In contrast, intrusive mental rumination, anxieties about the future, fantasies, or absorption in the past can blunt and constrict an individual’s experience of the present moment (Brown & Ryan, 2003). Not only does mindfulness increase one’s capacity to attend to current experience, but it facilitates an accepting orientation towards that experience (Bishop et al., 2004). Acceptance in this context is defined as an openness to the reality of the present moment (Roemer & Orsillo, 2002). Thus, in Bishop et al.’s (2004) words, “mindfulness can be conceptualized as the process of relating openly with experience” (p. 233).

As the science and application of mindfulness has grown over the last several decades, so too have the various ways in which mindfulness is studied. Although there is obvious overlap between conceptualizations, researchers have identified mindfulness as a transient state of consciousness, a disposition (or trait), and as a set of skills or interventions. In contrast to

mindfulness as a transient state of consciousness, dispositional mindfulness represents a more stable quality of being. It refers to the general frequency, intensity, and length of time an individual attends to the present moment in an open and accepting way, or in other words, the degree to which an individual is in a state of mindfulness across time (Burpee & Langer, 2005). The recent growth in mindfulness research has revealed that dispositional mindfulness, or the capacity to be mindful, varies both between and within people across time, and predicts a variety of measures related to psychological well-being (Brown & Ryan, 2003). As an analogy, dispositional mindfulness can be thought of as a muscle of the mind. Just as people vary in their physical strength and the resulting capacity to lift certain weights, so too do people vary in the “mental strength” needed to attend to their current experience in an open and nonjudgmental way.

Studies that have found higher levels of dispositional mindfulness in long-term meditators than non-meditators suggest that dispositional mindfulness may be actively cultivated and increased over time (Brown & Ryan, 2003). Thus, mindfulness as a skill or intervention can be thought of as a variety of behaviors practiced with the intention of increasing dispositional mindfulness. Mindfulness skills, which are often forms of mindfulness meditation, are taught in mindfulness-based interventions (MBIs), such as mindfulness-based stress reduction (e.g., Kabat-Zinn, 1990). Indeed, mindfulness practices have been shown to effectively increase dispositional mindfulness across time (Carmody, Baer, Lykins, & Olendski, 2009). Continuing with the physical strength analogy, just as muscles can be strengthened through consistent weight training, so too can an individual’s capacity to be mindful (i.e. dispositional mindfulness) increase through consistent mindfulness practice. As the current study is interested in identifying individual differences in cognitive processes which may facilitate the development of

posttraumatic growth throughout the grieving process, dispositional mindfulness best reflects the target construct for this research. Moreover, given that mindfulness-based interventions teach specific skills which may effectively increase dispositional mindfulness, the results of this research could have important clinical implications for working with bereaved populations.

Mindfulness and Self-Regulation. Mindfulness may provide an optimal state from which individuals can adaptively work through universal vulnerabilities and challenges, including bereavement, that are inherent in the human condition (Crane, 2009). Most scientific models conceptualize mindfulness as a self-regulatory process, which is the ability to effectively initiate, maintain, and control one's thoughts, behaviors, or emotions with the goal of producing a desired outcome (Carver & Scheier, 1990). Regulatory Focus Theory (RFT; Higgins, 1998) further distinguishes between prevention focused (i.e. keeping bad things from happening) and promotion focused (i.e. making good things happen) self-regulation. Through focusing on momentary experience and disengaging from automatic negative schemas and reactions, mindfulness is thought to operate as a top-down mechanism that reduces negative affect and eliminates maladaptive behavioral patterns (Bishop et al., 2004; Ostafin, Robinson, & Meier, 2015), a primarily preventive (or eliminative) account for the therapeutic effects of mindfulness.

The role of mindfulness as a preventive self-regulatory process is consistent with research showing that dispositional mindfulness predicts lower levels of negative affect (Brown and Ryan, 2003; Iani, Lauriola, Cafaro, & Didonna, 2017), as well reduced sympathetic reactivity following an emotional stress task (Kadziolka, Pierdonmenico, & Miller, 2016). In addition, the growing body of research supporting the efficacy of mindfulness-based interventions (MBIs) in reducing symptoms of psychopathology further supports its conceptualization as a preventive or eliminative self-regulatory process. For example, evidence suggests that MBIs reduce chronic

pain (Kabat-Zinn, 1982), anxiety (Kim et al., 2009; Kim et al., 2010), depression (Kuyken et al., 2009; Teasdale et al., 2000), binge-eating (Chen & Safer, 2010), and substance abuse (Witkiewitz & Bowen, 2010) among others forms of psychopathology.

Mindfulness and Grief. From a cognitive-behavioral perspective, one rationale for the role of mindfulness in relationship to traumatic stress, such as the death of a loved one, rests on the assumption that symptoms are developed and maintained by experiential avoidance (Walser & Hayes, 2006; Boelen et al., 2010). Experiential avoidance is the unwillingness to be in contact with internal experiences, such as body sensations, emotions, thoughts, and memories (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996) and has been identified as a mediating mechanism between suicide bereavement and complicated grief (Nam, 2016). As described earlier, maladaptive grief reactions may in part be maintained by the avoidance of internal and external stimuli that evoke the pain of the loss (Boelen et al., 2007). Integrating cognitive-behavioral and constructivist theory, avoidance behavior in the context of grief may disrupt an individual's ability to integrate their loss into their existing personal narrative (Boelen et al., 2010; Neimeyer, 2004). In contrast, mindfulness encourages an individual to focus on and turn toward painful or unpleasant sensations (physical or mental) as they arise, rather than avoiding them (Kabat-Zinn 1990), and is negatively associated with experiential avoidance (Baer et al., 2006; Mahoney, Segal, & Coolidge, 2015). Through orienting towards painful experience with acceptance, emotional distress may be more tolerable and experienced as less threatening due to acceptance inevitably changing the context of its subjective meaning (Bisop et al., 2004). Thus, it follows that mindfulness may play an important role in facilitating adaptive grieving.

Despite the proliferation of research supporting the role of mindfulness in self-regulation and optimal psychological functioning, there has been very limited attention given to either

dispositional mindfulness or mindfulness-based interventions in the context of grief. Cacciatore and Flint (2012) proposed a mindfulness-based framework specifically for working with the bereaved, called the ATTEND model. This bereavement care model utilizes the elements of attunement, trust, therapeutic trust, egalitarianism, nuance, and death education (ATTEND). Like other approaches rooted in mindfulness, the ATTEND model aims to increase tolerance of negative emotions by increasing awareness to internal experience and teaching clients to respond rather than react to internal and external circumstances (Cacciatore, Thieleman, Osborn, & Orłowski, 2014). A very small, uncontrolled study testing the effects of grief therapy using the ATTEND framework found reductions in symptoms of traumatic stress, anxiety, and depression in individuals who had experienced the traumatic death of a loved one (Thielman et al., 2014). Only one other study to my knowledge has investigated the effects of a mindfulness-based intervention specifically for the bereaved. O'Connor and colleagues (2014) utilized a non-randomized controlled pilot design to test the effects of mindfulness-based cognitive therapy (MBCT; Segal, Williams, & Teasdale, 2002) on symptom severity of depression, complicated grief, and posttraumatic stress in elderly bereaved individuals with long-term grief-related issues (O'Connor, Piet, & Hougaard, 2014). They found significantly reduced depressive symptoms at 5-month follow-up compared to wait list controls, but no other effects were significant. Relatedly, MBIs have also shown positive effects for individuals experiencing life-threatening illnesses, such as cancer, including improved mood related symptoms, increased quality of life, and reduced stress (Specia et al., 2000; Carleson et al., 2004).

Just as the literature on MBIs for bereavement-related difficulties is limited, so too is the research examining the role of dispositional mindfulness. While lower levels of dispositional mindfulness have consistently been linked to lower levels of mental health problems such as

depression, anxiety, and non-suicidal self-injury (Brown & Ryan, 2003; Segal et al., 2002; Heath, Joly, & Carsley, 2016), which are often overlapping concerns within bereavement (Thielman et al., 2014; Kendler, Myers, & Zisook, 2008), to my knowledge, only one study has examined the relationship between dispositional mindfulness and specific bereavement outcomes. Burke (2010) examined the relationship between dispositional mindfulness and PTG in bereaved college students and surprisingly found negative correlations between mindfulness and the PTG personal strength and new possibilities scales; however, these relationships were no longer significant after controlling for demographic variables, closeness to deceased, and grief distress, suggesting that further research is needed to understand the relationship between dispositional mindfulness and PTG in the context of grief.

Dispositional mindfulness in Burke's (2010) study was measured with the Mindfulness Attention Awareness Scale (MAAS; Brown & Ryan), which conceptualizes dispositional mindfulness as a unidimensional construct, focused solely on attention and awareness on the present moment. Given that emotions experienced in grief can be aversive, it is possible that the multidimensional conceptualization of mindfulness which also captures the quality of orientation towards present moment experience (i.e. nonjudgement, acceptance, etc.) would have yielded different results. Without such orientation, an individual's attentional system may only be receptive to the negative and painful aspects of the present moment grief experience and unable to engage in the necessary meaning-making processes, such as deliberate rumination and positive reappraisal, that promote posttraumatic growth. As such, the current study addresses this issue by measuring dispositional mindfulness with the Five Factor Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Tony, 2006), which includes dimensions of observing, describing, acting with awareness, nonreactivity to internal experience, and nonjudgment.

Observing and describing capture the qualities of mindfulness that promote decentering, or psychological distancing, from automatic cognitive thoughts and schemas. This psychological distancing is well established to provide beneficial regulatory effects in the face of aversive experiences (Kross & Ayduk, 2011). Acting with awareness and nonreactivity to internal experience reflect the human capacity to make intentional choices rather than acting from autopilot. Perhaps most importantly, nonjudgment refers to the open and accepting approach to experience that is necessary to embrace the paradox of loss being both painful and meaningful. Although this study will not examine factor level effects, utilizing a total composite score of these dimensions and exploring the role of a broader conceptualization of mindfulness will fill an important gap in the bereavement literature and address the limitations of Burke's (2010) study. More specifically, I am hypothesizing in my study that dispositional mindfulness, as measured by the FFMQ, will predict posttraumatic growth following the death of a loved one. As such, the next section will provide an overview of the current theory and research relevant to mindfulness and posttraumatic growth.

Mindfulness and PTG. Returning to Tedeschi and Calhoun's (2004) model of posttraumatic growth, individual differences in cognitive processes following the aftermath of a death-related loss play an important role in the development of PTG. Dispositional mindfulness is somewhat unique in the sense that it reflects a stable personality construct characterized very explicitly by cognitive processes (i.e. awareness and attention). Although the role of mindfulness has been relatively neglected in the bereavement literature, it has garnered a significant amount of attention with regard to PTG. For example, a recent meta-analysis of 11 studies examining the effects of mindfulness training on PTG found a small overall positive effect size, with the PTG facets of relating to others and appreciation for life demonstrating the strongest effect in the 4

studies which examined factor level differences (Shiyko, Hallinan, & Naito, 2017). Although the effect size was small, the meta-analysis was limited in only being able to account for short-term effects. Given research suggests that PTG is a continuously unfolding process, with change increasing over time (Danhauer et al., 2013; Occhipinti, Chambers, Lepore, Aitken, & Dunn, 2015), it is possible that mindfulness training may exert an even stronger effect on PTG than the meta-analysis suggests, especially if individuals were to continue their mindfulness practice after formal intervention or training.

Other studies examining the role of dispositional mindfulness in the development of PTG have also found encouraging results. In cancer patients, increased dispositional mindfulness has been shown to mediate the effect of MBSR on posttraumatic growth (Labelle, Lawlor-Savage, Campbell, Faris, & Carlson, 2015), suggesting that mindfulness training may exert its effects through increasing an individual's capacity to be mindful. Similarly, dispositional mindfulness has been shown to mediate the positive relationship between posttraumatic stress symptoms and PTG in breast cancer patients (Liu, Wang, Zhang, Wanhm Xu, 2018). In addition to explanatory models of dispositional mindfulness in relation to PTG, moderation models suggest potential buffering effects of mindfulness post-trauma. For example, upon experiencing a natural disaster, dispositional mindfulness moderated the relationship between depression and PTG in adolescents, such that depression only predicted higher levels of PTG for adolescents high in dispositional mindfulness (Xu, Ding, Goh, & An, 2018).

As reviewed earlier, most scientific models of mindfulness propose that its therapeutic effects function through eliminative therapeutic mechanisms. More specifically, mindfulness is thought to reduce negative mental and emotional states of mind and, through increased awareness, eliminate maladaptive cognitive and behavioral patterns (e.g. Vago & Silbersweigh,

2012). While these appear to be important components of mindfulness's effectiveness (Holzel et al., 2011), recently it has been proposed that mindfulness may also function to promote positive emotion regulation processes, which are particularly relevant to PTG (Garland et al., 2015; Tedeschi & Belvins, 2015). In returning to an RFT framework, this means that mindfulness may also serve to activate promotion focused self-regulatory processes in addition to providing preventive or eliminative therapeutic effects. More specifically, Garland and colleagues (2015) proposed the *mindfulness to meaning theory* (MMT), which provides a framework for understanding the role of mindfulness in the development of PTG. This study will add to the existing literature on mindfulness and PTG by using MMT to investigate mindfulness as a promotion-focused self-regulatory process that facilitates PTG in the context of grief through the mechanism of meaning-making, which will be reviewed next, following a brief summary.

Summary. Although a relatively wide range of studies have demonstrated a significant relationship between mindfulness and posttraumatic growth, there exists very limited research examining the relationship between dispositional mindfulness and PTG specifically in the context of grief. Thus, the current study seeks to fill this gap in the literature as well as build on the emerging literature on the role of mindfulness as a promotion focused self-regulatory process by examining the relationship between mindfulness and PTG. Based on the rationale that symptoms of traumatic stress are maintained through experiential avoidance (i.e. the antithesis to mindfulness) as well as previous research demonstrating a positive relationship between mindfulness and PTG (e.g. Liu et al., 2018; Shiyko et al., 2017), higher levels of dispositional mindfulness might be expected to predict higher levels of posttraumatic growth. In addition, grounded in MMT, I will build on the emerging literature on the role of mindfulness in promotion-focused self-regulatory processes by investigating meaning-making as a mediator

between mindfulness and PTG. To that end, in the next sections I will review the theory and research on meaning-making and its relationship to grief and posttraumatic growth, as well as provide a more detailed explanation of the mindfulness to meaning theory in which the current study is grounded.

Meaning-Making Theory and Research.

Victor Frankl (1962) struck an instrumental chord with his assertion that human beings are driven by the innate psychological need to find or create meaning and a sense of purpose in their lives. Not only does meaning and purpose drive human beings, he asserts, but it facilitates the capacity to overcome even the most profound suffering. As Frankl (1962) quotes Nietzsche in his seminal work, *Man's Search for Meaning*, "He who has a 'why' to live, can bear almost any 'how'" (p. 76). Since then, the process of meaning-making has been extensively studied within psychology. In particular, constructivist theories in the context of psychology emphasize the necessity for individuals to ascribe meaning to their experiences (Vygotsky, 1978). Broadly speaking, meaning-making is identified as an essential process of integrating experiences into an existing self-narrative, defined as "an overarching cognitive-affective-behavioral structure that organizes the 'micro-narratives' of everyday life into a 'macro-narrative' that consolidates our self-understanding, establishes our characteristic range of emotions and goals, and guides our performance on the stage of the social world" (Neimeyer, 2004, p. 53-54). The process of meaning-making has especially been highlighted within the area of trauma psychology. As reviewed earlier, Janoff-Bulman (1989) defines trauma as an experience that threatens deep seated beliefs that the world is benevolent and meaningful and that the self is worthy of positive outcomes. Accordingly, the most successful adaptation to trauma occurs through cognitive-affective processes which restore a belief in the world's goodness over malevolence,

meaningfulness over randomness, and self-worth over self-deprecation (Janoff-Bulman, 1989). Folkman (2001) built upon this, stressing that successful coping is contingent upon “positive reappraisal,” a process of meaning-making in which a negative situation is cognitively reframed to have some form of benefit and to be seen anew in a positive or helpful light.

Despite the proliferation of meaning-making theories in the psychological literature, several researchers have noted that it is a complex and poorly defined construct (e.g. Brandstätter, Baumann, Borasio, & Fegg 2012). Janoff-Bulman and Frantz (1997) have distinguished between meaning as *comprehensibility*, sometimes equated with *sense-making*, or meaning as *significance*, sometimes equated with *benefit-finding*. Comprehension of a stressful life event may be an underlying necessity to assimilate the event into an individual’s pre-existing life-narrative, while meaning as significance may be more reflective of restructuring pre-existing global beliefs to accommodate discrepant information (Janoff-Bulman, 1989; Holland, Currier, Coleman, & Neimeyer, 2010). For example, it may make-sense that death is an inevitable part of the human condition, but that comprehensibility does not negate the disruption that death-related losses can create in an individual’s self-narrative and worldview. On the other hand, meaning as significance (or benefit finding) captures the idea that deliberate rumination may lead to the positive reappraisal needed to facilitate the development of posttraumatic growth. More recently, in an attempt to clarify the concept of meaning-making, Park (2010) proposed a model of meaning which distinguishes between (a) global meaning (i.e. an individual’s core beliefs about self, others, and the world), (b) the appraised meaning of an event (usually challenging or otherwise stressful), (c) meaning-making processes to reduce any discrepancy between an appraised event and global meaning (e.g. positive appraisal) and (d) the meaning made or results of meaning-making processes.

Because the current study is interested in predicting posttraumatic growth following the death of a loved one, the meaning made or the results of meaning making-processes (i.e. reducing discrepancy between how the death is appraised and an individual's global meaning) best represent the target construct for this research. As such, this study measures meaning-making with the Integration of Stressful Life Experiences Scale (ISLES; Holland et al., 2010), which measures the degree to which a stressful event has been integrated into an individual's broader life story in such a way as to provide a coherent sense of self and a secure sense of purpose in the world. The ISLES was specifically designed to assess the extent to which a discrepancy exists between an appraised stressful event and an individual's global worldview (Holland et al., 2010). For example, an example item of the ISLES is: *"I have difficulty integrating this event into my understanding of the world."* In contrast to related measures such as the Centrality of Events Scale (CES; Bernstein & Rubin, 2006), which assesses the extent to which an individual's identity and narrative have become dominated by an appraised event, the ISLES is concerned with how the appraisal of an event reflects narrative coherence (Holland et al., 2010). Thus, meaning-making in this study will capture the degree to which the death of a loved one has been appraised in such a way as to reflect a coherent and meaningful self-narrative. The following sections will review the literature on meaning-making specifically in the context of grief and PTG.

Meaning-Making and Grief. Based on constructivist theory and drawing heavily on cognitive models of trauma and coping, Neimeyer (2000) first proposed that meaning reconstruction in response to loss is the central process of grieving, which has become known as the Meaning Reconstruction Theory. In essence, adaptive grieving requires reconstructing a world of meaning that has collapsed with the death of a loved one. Within Meaning

Reconstruction Theory, meaning-making is comprised of three major activities: *sense-making*, *benefit-finding*, and *identify change* (Gillies & Neimeyer, 2006; Neimeyer, 2001). As cognitive and trauma theories propose, the most challenging events are the ones that make the least amount of sense in a survivor's pre-existing assumptive worldview (Janoff-Bulman, 1989), thus highlighting the importance of being able to make sense of death-related losses. Benefit finding draws on cognitive and coping models which stress the importance of processes, such as "positive reappraisal" (Folkman, 2001). For example, the death of a loved one may be beneficial in the sense of deepening one's appreciation for life, increasing compassion for the suffering of others, etc. However, Neimeyer and Anderson (2002) warn that benefit-finding is by no means a certain outcome and is not typically seen until years after the loss. Lastly, identity change, which is also guided by cognitive models of coping, in essence captures the phenomena that in reconstructing a world of meaning, individuals inherently restructure themselves. Thus, if individuals fail to reconstruct a world of meaning through making sense of their loss and/or are unable to engage in positive reappraisal, individuals may be left with a fragmented self-narrative that is no longer makes sense in their present reality without the deceased (Currier & Neimeyer, 2006).

A wide body of bereavement research has provided support for the Meaning Reconstruction Theory of grief. For example, Schwartzberg and Janoff-Bulman (1991) found that bereaved college students were less likely to believe in a meaningful world than nonbereaved college students, and the lower their perceived meaningfulness, the greater their loss related distress. In a more recent study, meaning-making was found to fully mediate the relationship between unnatural death-related losses and complicated grief as well as partially mediate the association between the relationship to the deceased and complicated grief

(Rozalski, Holland, Neimeyer, 2017). Similarly, in a longitudinal study that examined different grief trajectories in widows, a persistent and painful “search for meaning” was associated with chronic grief (Bonanno et al., 2004), highlighting an important distinction between search for meaning and the presence of meaning. Likewise, Linley and Joseph (2011) found that presence of meaning was associated with higher levels of broadly measured positive change and lower levels of negative change as measured by the Changes in Outlook Questionnaire (CiOQ; Joseph et al., 1993) compared to search for meaning across three diverse samples.

Mindfulness to Meaning-Making. Given both Buddhism and contemporary scholarship’s claim that mindfulness practices promote nonevaluative states of awareness (Brown & Ryan, 2003; Kabat-Zinn, 1990), a relationship between mindfulness and meaning-making may seem paradoxical at first. However, Garland et al. (2015) have recently argued that because attributing meaning to experience is imperative to psychological development in the West (Vygotsky, 1978), Westerners will inevitably reengage with cognitive appraisals about the self and the world following any acute mindfulness states or practices. Thus, although mindfulness may indeed exert therapeutic effects through eliminative mechanisms (e.g. extinguishing habitual negative reactions, reducing negative affect, etc.), they contend that by conceptualizing mindfulness as a strictly nonevaluative process, its broader role of generating eudaimonic well-being is missed. While hedonic approaches to happiness are concerned with obtaining pleasure and avoiding pain, eudaimonic well-being depends on a felt sense of meaning and purpose that results from engaging with life in a way that is in harmony with deeply held values despite any external circumstances (Ryan & Deci, 2001). Indeed, mindfulness practitioners report higher levels of both eudaimonic well-being and posttraumatic growth than non-practitioners (Hanley et al., 2015). Thus, in an attempt to fill an explanatory gap within the

science of mindfulness (i.e. how mindfulness influences positive emotion regulatory processes), Garland et al. (2015) proposed the *mindfulness to meaning theory* (MMT) which provides a framework for understanding how mindfulness might account for the making and maintaining of meaning and eudaimonic well-being in secularized western contexts. More specifically, Garland et al. (2015) propose that “mindfulness promotes positive reappraisal, a salutary form of evaluative cognitive-affective processing to enhance eudaimonic well-being” (p. 294), otherwise known as the “mindful reappraisal” hypothesis.

At the center of MMT is the proposition that mindfulness induces a metacognitive awareness that shifts and broadens how an individual is able to attend to experience, creating a new “psychological space” for positive reappraisals which drive meaning-making in the face of aversive experiences (Garland et al., 2015), p. 298). Indeed, there appears to be a robust relationship between dispositional mindfulness and positive reappraisal. For example, positive reappraisal has been found to mediate the negative relationship between dispositional mindfulness and depressive symptoms in psychiatric patients (Desrosiers, Vine, Klemanski, & Nolen-Hoeksema, 2013) and partially mediate the negative relationship between dispositional mindfulness and craving in individuals with substance use disorders (Garland, Roberts-Lewis, Kelley, Tronnier, & Hanley, 2014). More broadly, dispositional mindfulness has been positively linked with positive appraisal across five diverse samples ($r = .29 - .44$), even after controlling for positive affect (Hanley & Garland, 2014).

In the first phase of the mindfulness-meaning process, mindfulness is hypothesized to promote deactivation of automatic schemas and habitual defensive reactions through a cognitive “set shifting” in which an individual decenters from their thoughts, sensations, and emotions into instead a metacognitive state of awareness. Over time, decentering is believed to eventually

extinguish the automatic appraisals and reactions as individuals replace the fulfillment of conditioned responses with an awareness of their relationship to the conditioned stimulus (Garland et al., 2015). Relatedly, this mindful way of attending over time is thought to relinquish rumination on a particular stressor in a constricted way and enable broader perspective taking relative to the stressor and its context, a process which is supported by empirical research linking mindfulness to cognitive flexibility (Moore & Malinowski, 2009), increased capacity to reorient attention (Jha, Krompinger, & Baime, 2007), and improved ability to detect changes in stimulus sets (Hodgins & Adair, 2010). This process may also be aided by the tendency for mindfulness to increase positive emotion as suggested by both observational studies (Orzech, Shapiro, Brown, & McKay, 2009; Schroevers & Brandsma, 2010) and randomized control trials (Geschwind, Peeters, Drukker, van Os, & Wichers, 2011; Nykliček & Kuijpers, 2008). Garland et al., (2015) hypothesize that mindfulness induced increases in positive emotions may be directly related to changes in brain functionality. For example, established neural correlates of positive emotions have been found to be more active in participants randomized to a mindfulness-based intervention versus a waitlist control (Davidson et al., 2003).

Garland et al. (2015) further hypothesize that following the decentering stage, an individual's broadened state of awareness and positive emotion may orient an individual's attentional system towards positively valenced stimuli regarding oneself and their world, ultimately allowing access to new information which fosters reappraisal of a stressor in a way that is meaningful or growth oriented. Thus, although acute mindfulness practice may stimulate a nonevaluative state of mind, as individuals inevitably shift back and forth between this mindful state of mind and a more narrative mode of thinking in which they reengage with their meaning-based life story, positive reappraisals may arise through spontaneous insight grounded in

working memory or deliberate rumination of having processed an experience or a stressor in a new way (Garland et al., 2015). Numerous iterations of this process are likely to occur and with them, the unfolding of meaning-making. Although this description of MMT is greatly condensed and may seem simplistic, Garland et al. (2015) provides a more thorough and integrated review of both the theory and research in which MMT is grounded, including a neural account for how mindfulness promotes reappraisal via interoceptive recovery.

Although the mindful reappraisal hypothesis is relatively new in the literature, there are emerging studies supporting its validity. For example, a recent longitudinal study examined the time-lagged associations between state mindfulness and positive reappraisal in a community sample participating in a mindfulness-based intervention. The researchers found that individuals who experienced the greatest increases in state level mindfulness (measured immediately after the intervention each week) also reported the highest use of positive reappraisal throughout the previous week (Garland, Kiken, Faurot, Palsson, & Gaylord, 2017). Another recent longitudinal study tested MMT hypotheses comparing MBSR to CBT for individuals with social anxiety disorder and found that MBSR produced greater increases in decentering and broadened awareness than CBT. Moreover, they found support for the downstream series of processes MMT proposes leads to meaning-making and increases in eudaimonic well-being. The ability to decenter from distressing thoughts and feelings, measured at three months, predicted broader awareness of internal and external experiences measured at six months. Further, broadened awareness at six months predicted greater reappraisal self-efficacy at nine months, which ultimately predicted increased positive affect one year post-intervention (Garland, Hanley, Goldin, & Gross, 2017). Taken together, these studies provide preliminary support for MMT's assertion that mindfulness not only facilitates as an eliminative emotion regulation strategy as

previous research has primarily focused on (e.g. reducing negative affect and maladaptive cognitive/behavioral patterns), but it also functions as a generative, positive emotion regulatory strategy—likely facilitating the innate psychological need to have meaning and a sense of purpose in our lives.

MMT and PTG. Given that posttraumatic growth is intricately linked with the generation of meaning, MMT provides an optimal framework for the current study. As described earlier, following a trauma, the transformation of intrusive rumination to deliberate rumination over time may be an underlying cognitive process facilitating the development of PTG following death-related losses (e.g. Taku et al., 2008; Taku, et al., 2009). Tedeschi and Belvins (2015) note that mindfulness’s cognitive “set shifting” described in MMT is consistent with the capacity to transform intrusive rumination into more deliberate rumination. Further, they posit that the ability to engage in a metacognitive awareness through which there is a decentering from thoughts and instead an observing of the thinking process itself (i.e. mindful attention), may enable the kind of paradoxical and dialectical thinking required for posttraumatic growth—that an aversive experience can cause great suffering *and* also catalyze the development of a more meaningful life.

Although Garland et al. (2015) frame MMT in regard to mindfulness practice rather than dispositional mindfulness, their hypotheses are grounded in processes that continue to unfold following the acute practice of mindfulness. It is possible that because individuals higher in dispositional mindfulness spend more time in a mindful state of awareness (Brown & Ryan, 2003), the processes described in MMT will still function within an individual regardless of a regular mindfulness practice. Using the framework of MMT, Hanley and colleagues (2017) recently tested a model of “mindful growth” that provides support for the role of dispositional

mindfulness in facilitating meaning-making processes integral to PTG. Collectively, their results suggested three cognitive coping pathways: intrusive, deliberate, and mindful-reappraisal. The intrusive pathway links core belief disruption to posttraumatic stress symptoms through intrusive rumination and the deliberate pathway links belief disruption positively to both posttraumatic stress symptoms and PTG through deliberate rumination. Thus, rumination appears to be related to both psychological distress and posttraumatic growth. Lastly, and of most interest to the current study, the mindful-reappraisal pathway links dispositional mindfulness to the highest levels of PTG and unlike the deliberate pathway, the mindful pathway also relates to lower levels of posttraumatic stress. The inverse relationship between dispositional mindfulness and posttraumatic stress was mediated by less intrusive rumination, suggesting that more mindful individuals may be capable of recognizing and preventively self-regulating automatic negative cognitive processes. Moreover, the results indicated that the mindful-reappraisal pathway to PTG is mediated by positive reappraisal, providing overall support for the current study's theoretical basis that mindfulness may operate as a promotion-focused self-regulatory process proposed by MMT (Hanley, Garland, & Tedeschi, 2017).

Summary. Constructivist theories highlight the psychological need for human beings to ascribe meaning to their experiences in order to form a coherent self-narrative (Vygotsky, 1978). Because trauma disrupts the core beliefs on which an individual's self-narrative is based, the most successful forms of coping are proposed to involve meaning-making processes, such as positive reappraisal, in order to restore a coherent sense of self and a belief in a meaningful world (Janoff-Bulman, 1989; Folkman, 2001). Studies grounded in the Meaning Reconstruction model of grief provide support for the importance of meaning-making following the death of a loved one (e.g. Bonanno et al., 2004; Rozalski, Holland, Neimeyer, 2017); however, less is

known about individual trait level differences that may make meaning-making more likely to occur. Although paradoxical at first, MMT asserts that mindfulness promotes eudaimonic well-being through creating an optimal state of awareness in which positive meaning-making processes can thrive (Garland et al., 2015). Although research has recently linked dispositional mindfulness to posttraumatic growth via meaning-making processes, such as deliberate rumination and positive appraisal (e.g. Hanley et al., 2017), there is a limited amount of research examining the relationship between dispositional mindfulness and PTG specifically in the context of grief. Integrating the Meaning Reconstruction model of grief with MMT provides the foundation from which this study is grounded. In essence, I am proposing that individuals higher in dispositional mindfulness will inherently be more prone to experiencing the optimal “psychological space” described earlier in which grief can dialectically exist as both painful *and* meaningful. As such, I hypothesize that dispositional mindfulness will positively predict posttraumatic growth, and that this relationship will be partially explained by meaning-making.

Traumatic Grief

Tedeschi and Belvin (2015) note that future research on the relationship between MMT and PTG should examine how the intensity of a given trauma influences the proposed mindfulness to meaning cognitive-emotional processes. The death of a loved one varies in its traumatic nature, with violent or unexpected deaths typically experienced as more traumatic (e.g. Currier et al., 2013). However, rather than focusing solely on the cause of death, traumatic grief is conceptualized on the basis of separation and traumatic distress symptomology, including intrusive and distressing preoccupation with the deceased, intense emotional pain or numbness, shattered assumptions (i.e. lost sense of security, trust, or control), feelings that life is empty or meaningless, and diminished sense of identity among others (Prigerson et al., 1999; Boelen &

Smid, 2017). As reviewed earlier, some degree of disruption in an individual's assumptive worldview (i.e. trauma) is the necessary catalyst for posttraumatic growth. Thus, the current study will explore the extent to which the traumatic nature of the grief experience moderates the proposed mediation model. I hypothesize that traumatic grief will moderate the relationship between mindfulness and meaning-making, as well as the relationship between mindfulness and PTG, such that both relationships will be stronger for more acute and painful death-related losses experienced as more traumatic.

Current Study

The current study aims to extend the literature on posttraumatic growth in the context of grief by testing the mindfulness-to-meaning theory in a sample of community members. Given previous research, I hypothesize the following:

Hypothesis 1. Dispositional mindfulness will positively predict posttraumatic growth.

Hypothesis 2. Meaning-making will partially mediate the relationship between dispositional mindfulness and posttraumatic growth.

Hypothesis 3. Traumatic grief will moderate the indirect effect of dispositional mindfulness on posttraumatic growth through meaning-making, such that it will be stronger for death-related losses that were experienced as more traumatic.

Hypothesis 4. Traumatic grief will moderate the direct effect of dispositional mindfulness on posttraumatic growth, such that it will be stronger for death-related losses that were experienced as more traumatic.

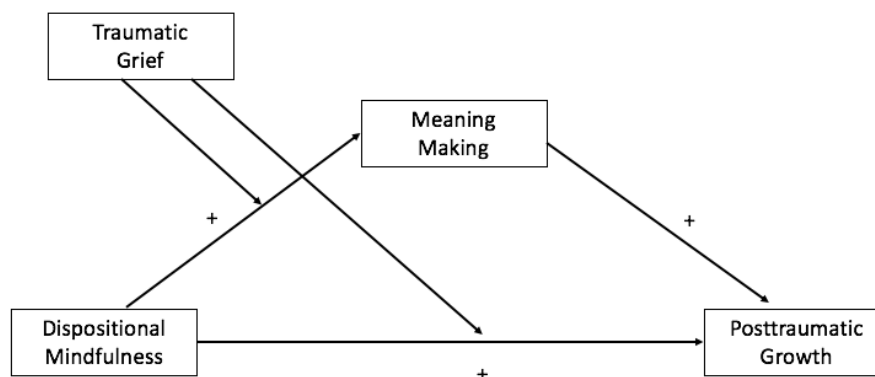


Figure 1. Conceptual, diagrammatic model of hypothesized relationships.

CHAPTER II: Method

Participants

Determining sample size. Based on the anticipated magnitudes of this study's model paths, to obtain a power of .80 with a small effect size of $f^2 = .15$, the required N is 77 (Faul, Erdfelder, Lang, & Bauchner, 2007). Prior studies exploring the associations between dispositional mindfulness and posttraumatic growth neglect the use of effect size to report results; however, a meta-analysis on the effect of mindfulness training on posttraumatic growth indicates a small cumulative effect size (*hedge's d* = .34). Likewise, research examining change in dispositional mindfulness as a mediator between mindfulness training and PTG indicates small indirect effect sizes for all mindfulness facets ($ab_s = .08 - .19$; Labell, Lawlor-Savage, Campbell, & Carlson).

Sample characteristics. The study uses archival data from a larger research study on grief. Participants were 232 (77.2% female) individuals recruited from social media groups, such as Facebook and grief related subreddits. Participants had to have experienced the death of a loved one in the last 10 years and be at least 18 years of age. Participants ranged from 18 to 67

years old, with a mean age of 35.7 years ($SD = 12.5$). Participants were 86.6% Caucasian, 3.4% Hispanic, 3.4% Asian American, 0.9% African American, 0.4% Native American, and 5.2% declined to respond.

Procedure

The current study employed a cross-sectional survey design. The researchers recruited participants through social media networking sites, such as Facebook and grief subreddits. Invitations to participate included a brief description of the study and a link to an online survey administered by Qualtrics. After clicking on the link provided in the invitation emails, participants were first directed to an informed consent page. Upon providing consents, participants provided demographic information and completed self-report measures assessing a wide range of variables related to individual and relational well-being. The full survey included nine measures, four of which are included in the current study. The local Institutional Review Board (IRB) approved the study before initiation of recruitment and data collection.

Measures

Demographic and situational variables. Participants responded to general demographic questions including age, gender, education level, religion, and ethnicity. Participants also reported on a number of variables related to their relationship to the deceased and the circumstances of the death. These included the type of relationship they had to the deceased, their closeness to the deceased, the cause of death, time since death, and whether or not the death was expected. Age, gender (males coded 0; females coded 1), closeness to the deceased, and time since death were used as control variables in the current study. For closeness to the deceased, participants were asked to rate how close they felt to the deceased at the time of death on a scale of 1 to 10 (with 10 being the closest they could feel). For time since death, participants

were instructed to be as specific as possible in terms of years and months when responding to the question “*how long ago was the death of your loved one*” (e.g. 2 years, 7 months), and to report how many days since the death if it was under one month (e.g. 7 days).

Posttraumatic Growth. Posttraumatic growth was measured using the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996), which assesses positive outcomes reported by people who have experienced a trauma. The PTGI contains 21 items that are answered on a 6-point Likert scale ranging from 0 (*I did not experience this change as a result of my crisis*) to 5 (*I experienced this change to a very great degree as a result of my crisis*). The current study substituted “the death of my loved one” for “my crisis” (original wording) in order to specifically assess the change resulting from participants’ losses. In addition to assessing total posttraumatic growth, the PTGI measures five subscales: relating to others (e.g. “I have more compassion for others”), new possibilities (e.g. “I established a new path for my life”), personal strength (e.g. I have a greater feeling of self-reliance”), spiritual change (e.g. “I have a better understanding of spiritual matters”), and appreciation for life (e.g. “I changed my priorities about what is important in life”).

The PTGI subscales were developed using principal component analysis (PCA) on data from 604 college students (Tedeschi & Calhoun, 1996). In its development, the total PTGI composite score showed good internal consistency ($\alpha = .90$), and the subscales also showed adequate internal consistency: relating to others ($\alpha = .85$); new possibilities ($\alpha = .84$), personal strength ($\alpha = .72$), spiritual change ($\alpha = .85$), and appreciation of life ($\alpha = .67$). The test-retest reliability for the 21-items was acceptable at $r = .71$ over a two month time period. Concurrent validity of the five factors of the PTGI was shown with positive correlations with the personality traits of extraversion, the tendency to be open to internal experience, and optimism. In addition,

discriminant validity was demonstrated by a lack of relationship between the PTGI and neuroticism, suggesting that posttraumatic growth is distinct from objective measures of psychological well-being. In the current study the total composite score of posttraumatic growth was used, with an internal consistency of $\alpha = .93$.

Dispositional Mindfulness. Dispositional mindfulness was measured using the Five Facet Mindfulness Questionnaire-Short Form (FFMQ-SF; Bohlmeijer, ten Klooster, Fledderus, Veehof, & Baer, 2011), which is an abbreviated version of the 39-item FFMQ (Baer et al., 2006). The FFMQ-SF contains 24 items that are answered on a 5-point Likert scale ranging from 1 (*never or very rarely*) to 5 (*very often or always true*). In addition to assessing total mindfulness, it measures five subscales: observing (e.g. “I pay attention to physical experiences, such as the wind in my hair or the sun on my face”), describing (e.g. “I’m good at finding words to describe my feelings”), acting with awareness (e.g. “I find myself doing things without paying attention” [reverse-scored]), nonjudging (e.g. “I tell myself that I shouldn’t be thinking the way I’m thinking” [reverse-scored]), and nonreactivity to inner experience (e.g. “When I have distressing thoughts or images, I just notice them and let them go”). The current study will utilize the total mindfulness composite score consisting of the five subscales.

The original FFMQ was empirically derived from an exploratory factor analysis ($N = 613$) conducted on a combined data set of 112 items obtained from five pre-existing trait mindfulness measures, including the MAAS and KIMS. Principle axis factoring with oblique rotation was used to allow for correlation among the factors, and resulted in a five-factor solution accounting for 33% of the variance. Four of the five factors were nearly identical to those identified in the development of the KIMS (Baer et al., 2004); however, an additional factor also emerged which encompassed a nonreactive stance towards one’s internal experience. Items with

the highest factor loadings on the five factors were retained, resulting in the final 39 items of the FFMQ. A subsequent confirmatory factor analysis ($N = 268$) indicated a good fit for the proposed five factor model of mindfulness ($CFI = .96$; $RMSEA = .06$). In testing whether the five factors were components of an overall mindfulness construct, the ‘observe’ factor did not load significantly onto the overall mindfulness construct. Goodness-of-fit indices in a subsequent hierarchical CFA suggested that four of the five factors (act with awareness, describe, nonjudgement, and nonreactivity) are components of a second-order overarching mindfulness factor ($CFI = .96$; $RMSEA = .06$). However, more recent psychometric evaluations of the FFMQ have provided support for an overarching mindfulness factor that includes all five subscales ($CFI = .97$; $RMSEA = .06$; Christopher, Neuser, Michael, & Baitmangalkar, 2012).

The FFMQ-SF has shown similar reliability and validity as the original scale (Bohlmeijer, ten Klooster, Fledderus, Veehof, & Baer, 2011). The FFMQ has shown adequate internal consistency ($\alpha = .75-.91$) and all subscales have shown convergent validity in positive correlations with well-being ($r = .23-.50$), emotional intelligence ($r = .20-.60$), and self-compassion ($r = .14-.53$) (Baer et al., 2006; Goldberg et al., 2016). In the current study, the internal consistency was found to be $\alpha = .87$.

Meaning-Making. Meaning making was assessed using the Integration of Stressful Life Events Scale (ISLES; Holland et al., 2010), which assesses the degree to which a stressful life experience has been adaptively incorporated into an individual’s life story in such a way as to promote a sense of internal coherence and hope for the future. The ISLES contains 16-items that are answered on a 5-point Likert scale ranging from 1 (*strongly agree*) to 5 (*strongly disagree*). It is comprised of two subscales: footing in the world (e.g. “*my previous goals and hopes for the*

future don't make sense anymore since this event"), and comprehensibility (e.g. "I have difficulty integrating this event into my understanding of the world.")

In its development, the ISLES showed good internal consistency in both a sample of young adults who experienced a range of stressful life events and a sample of bereaved young adults who had lost a loved one ($\alpha = .92$ and $\alpha = .94$ respectively) and appeared to be moderately stable over a 3-month time period ($r = .57$ and $r = .59$). Convergent and divergent validity were demonstrated by correlations with related constructs, such as sense making ($r = .22$ and $r = .4$), general health ($r = .35$ and $r = .23$), and psychological distress ($r = -.48$ and $r = -.36$). In the current study, the internal consistency was found to be $\alpha = .94$.

Traumatic Grief. The degree to which the death-related loss was experienced as traumatic was measured using the Traumatic Grief Inventory-Self Report (TGI-SR; Boelen & Smid, 2017), which assess the degree to which a death-related loss was experienced as traumatic based on symptoms of prolonged grief disorder (PGD; Prigerson, 2009) and persistent complex bereavement disorder (PCBD; APA, 2013). The TGI-SR includes all 16 symptoms of PCBD and one additional symptom of PGD (i.e. *"I felt shocked or numbed by his/her death"*), and one item that assesses functional impairment (included in both PGD and PCBD diagnostic criteria). In total, the TGI-SR includes 18 items, providing a total composite score which will be used in the current study. The instructions ask participants to keep in mind one particular loss that was experienced as the most distressing when answering each item on a 5-point Likert scale ranging from 1 (*never*) to 5 (*always*). Example items include, *"I felt a strong longing or yearning for the deceased," "I felt that life is meaningless or empty without the deceased,"* and *"I felt confusion about my role in life, or a diminished sense of identity"*.

During development, most items on the TGI-SF (except 15-17) were taken from the widely used 19-item Inventory of Complicated Grief (ICG; Prigerson et al., 1995, Prigerson et al., 2009) and its extended version, Inventory of Complicated Grief-Revised (ICG-R; Prigerson & Jacobs, 2001). Preliminary psychometric evaluation was conducted on a sample of patients ($N = 327$) referred for treatment at a center focused on treatment of psychopathology following loss and trauma. Results of exploratory factor analyses provided support for a one factor solution. In addition, the TGI-SR showed good internal consistency ($\alpha = .95$) and also demonstrated construct validity in being able to discriminate between participants who had lost a significant other to violent or unnatural causes and participants with death-related losses that were not violent or unnatural, with those experiencing violent or unnatural death-related losses scoring significantly higher. In the current study, the internal consistency was found to be $\alpha = .93$.

CHAPTER III: Results

Data Preparation

Prior to analysis, data was examined for missingness and violations of the assumptions for multiple regression, including linearity, homoscedasticity, independence, and normality.

Missingness. Missing data was handled via the multiple imputation tools in SPSS 25. Based on recommendations from Olinsky and colleagues (2003), cases were included in the multiple imputation if no more than 24% of raw data items was missing. The original data set consisted of three hundred and seventy-five cases. One hundred and forty-three cases were deleted based on less than 76% complete data. Given this study was advertised online and there was no monetary incentive, a large percentage of participants started the survey, but dropped out during the first few measures. After deleting cases based on greater than 24% missingness, multiple imputation was conducted on the remaining two hundred and thirty-two cases. A visual

inspection of missing value patterns indicated the general, or haphazard pattern as described by Enders (2010). Maximum case draws were specified at 50 and maximum parameter draws at 2.

Linearity. The assumption of linearity states that the relationship between the independent variable (IV) and the dependent variable (DV) is linear (Fields, 2013). Linearity was assessed with scatterplots and best-fit lines imposed to assure that the data followed a linear trajectory rather than quadratic trajectory. Data appeared to be equally distributed around a linear best-fit line, indicating a linear relationship between the IV and DV.

Homoscedasticity. The assumption of homoscedasticity states that across all levels of the predictor variable, the variability of residuals around the predicted values is similar (Fields, 2013). Homoscedasticity was assessed using a scatterplot with unstandardized residuals on the y-axis and the predictor variable on the x-axis. Residuals were equally dispersed, indicating that the data does not violate the assumption of homoscedasticity.

Independence. The assumption of independence states that residuals are not correlated. Independence was tested using the Durbin-Watson test (Field, 2013). Values lower than 1 or greater than 3 are indicative of an independence violation. The Durbin-Watson test yielded a statistic of 1.87, indicating independence between variables.

Normality. The assumption of normality states that data should follow normal distribution (Fields, 2013). Normality was assessed visually and with the Kolmogorov-Smirnov (K-S) test, which did not attain significance for mindfulness ($D [232] = .040, p = .200$, posttraumatic growth ($D [232] = .051, p = .200$), or meaning-making ($D [232] = .044, p = .200$), indicating normal distribution for each variable. The K-S was significant for traumatic grief ($D [232] = .071, p = .006$), was significant. However, given that this test is overly sensitive in large

samples, visual inspection of the histogram indicated normal distribution, and absolute values for skew (-.28) and kurtosis (-.66), normality was assumed.

Preliminary Analysis

Preliminary analysis included descriptive statistics for the demographic and situational characteristics of the sample. In terms participants' relationship to the deceased, 20.3% of participants reported losing a child, 20.3% a spouse, 17.2% a parent, 16.8% an extended family member, 10.3% a sibling, 7.3% a romantic partner, 6% a close friend, and 1.7% indicated other. Relative to death expectancy, 62.9% of participants reported that the death of their loved one was unexpected. Time since the death ranged from 1 day to 120 months, with a mean time of 27.9 months ($SD = 31.5$). See Table 1 for more demographic and situational characteristics of the sample.

Preliminary analysis also included bivariate correlations between mindfulness, meaning-making, traumatic grief, and posttraumatic growth. The means, standard deviations, and bivariate correlations for all study variables are displayed in Table 2. As expected, mindfulness was significantly and positively related to both meaning-making ($r = .39, p < .001$) and posttraumatic growth ($r = .20, p = .003$), and it was negatively related to traumatic grief ($r = -.30, p < .001$). There was also a strong negative relationship between meaning-making and traumatic grief ($r = -.76, p < .001$). The relationship between meaning-making and posttraumatic growth approached significance ($r = .12, p = .067$).

Table 1. *Sample Demographic and Situational Characteristics*

	<i>N</i>	% of Sample	<i>M</i>	<i>SD</i>
Age	232		35.7	12.5
Gender				
Female	179	77.2		
Male	53	22.8		
Relationship lost				
Child	47	20.3		
Parent	40	17.2		
Spouse	47	20.3		
Sibling	24	10.3		
Romantic Partner	17	7.3		
Close Friend	14	6.0		
Extended Family	39	16.8		
Other	4	1.7		
Time (months)	232		27.9	31.5
Cause				
Illness	151	65.1		
Accident	30	12.9		
Suicide	18	7.8		
Natural Cause	15	6.5		
Homicide	2	.9		
Other	16	6.9		
Expectancy				
No	146	62.9		
Yes	86	37.1		
Closeness to the deceased	232		8.59	2.04

Table 2. *Means, Standard Deviations, and Bivariate Correlations Among Study Variables*

	Mean	SD	FFMQ	ISLES	TGI	PTGI
FFMQ	72.92	12.91	-	.39**	-.30**	.20**
ISLES	47.57	16.10	-	-	-.76**	.12
TGI	48.50	12.73	-	-	-	-.01
PTGI	62.90	22.17	-	-	-	-

Note. FFMQ = Five Factor Mindfulness Questionnaire. ISLES = Integration of Stressful Life Events Scale. TGI = Traumatic Grief Inventory. PTGI = Post Traumatic Growth Inventory.

* = $p < .05$

** = $p < .01$

Primary Analysis

The hypothesized moderated mediation model was tested using Hayes' (2013) PROCESS Macro in SPSS to estimate the conditional direct and indirect effects of mindfulness on posttraumatic growth through meaning-making as moderated by traumatic grief on the a and c' paths, using 10,000 bootstrapped samples. All four of the study variables (dispositional mindfulness, meaning-making, traumatic grief, and posttraumatic growth) were treated as continuous and were mean centered prior to analysis. Results indicated that 63.7% of the variance in meaning-making and 10.5% of the variance in posttraumatic growth was explained by the hypothesized moderated-mediation model.

As shown in Table 3, mindfulness positively predicted meaning-making and traumatic growth negatively predicted meaning-making. The interaction effect between mindfulness and traumatic grief on meaning-making was not significant. Meaning-making positively predicted posttraumatic growth. Additionally, although the main effect of mindfulness on posttraumatic growth was not significant, the interaction effect between mindfulness and traumatic grief on posttraumatic growth was positive and significant, such that the effect of mindfulness on posttraumatic growth became stronger as traumatic grief increased. As shown in Table 4, at low ($-1\ SD$) and average levels of traumatic grief, the direct effect of mindfulness on posttraumatic growth was not significant. However, as traumatic grief increased, the effect of mindfulness on posttraumatic growth also increased and became significant at high levels ($+1\ SD$) of traumatic grief.

The indirect effect of mindfulness on posttraumatic growth was also significant. Contrary to what was hypothesized, the conditional indirect effect showed a different pattern than the direct effect. At low levels of traumatic grief ($-1\ SD$), the indirect effect was significant.

Although decreasing in strength, the indirect effect remained significant at average levels of traumatic grief, and then became nonsignificant at high levels (+1 *SD*) of traumatic grief. See Table 4 for all coefficients, standard errors, and confidence intervals for the conditional direct and indirect effects.

Table 3

Results of the Moderated Mediation Model

		Outcome						
		Meaning Making (X)			Posttraumatic Growth (Y)			
Predictor		<i>b</i>	<i>SE</i>	<i>CI</i> ₉₅		<i>b</i>	<i>SE</i>	<i>CI</i> ₉₅
Constant	<i>i_i</i>	45.45*	3.99	37.58, 53.31	<i>i_i</i>	39.92*	10.89	18.47, 61.38
Age		.06	.05	-.05, .16		-.12	.12	-.36, .11
Gender		2.22	1.60	-.93, 5.37		-.34	3.48	-7.20, 6.52
Time		.07*	.02	.03, .11		.04	.05	-.06, .13
Closeness		-.44	.34	-1.12, .23		1.44	.75	-.04, 2.92
FFMQ (X)	<i>a₁</i>	.23**	.06	.12, .34	<i>c' ₁</i>	.20	.12	-.04, .45
ISLES (M)					<i>b₁</i>	.32*	.15	.04, .61
TGI (W)		-.85**	.06	-.96, -.73		-.26	.18	-.09, .60
FFMQ * TGI	<i>a₂</i>	-.01	.01	-.01, .00	<i>c' ₂</i>	.03*	.01	.01, .04

Note. Closeness = closeness to the deceased at the time of death. Time = time since the death. FFMQ = Five Factor Mindfulness Questionnaire. ISLES = Integration of Stressful Life Events Scale. PTGI = Post Traumatic Growth Inventory. TGI = Traumatic Grief Inventory.

**p* < .01, ** *p* < .001

Table 4

Conditional Direct and Indirect Effects of Mindfulness on Posttraumatic Growth through Meaning Making as a function of Traumatic Grief

Traumatic Grief	Conditional Direct Effects (FFMQ→PTGI)			Conditional Indirect Effects (FFMQ→ISLES→PTGI)		
	<i>b</i>	<i>SE</i>	<i>CI</i> ₉₅	<i>b</i>	<i>SE</i>	<i>CI</i> ₉₅
-12.73 (-1 <i>SD</i>)	-.12	.19	-.49, .25	.10*	.06	.01, .23
.00 (<i>M</i>)	.20	.12	-.04, .45	.07*	.04	.01, .17
12.73 (+1 <i>SD</i>)	.53*	.15	.23, .83	.05	.04	-.01, .15

Note. *SD* = Standard Deviation. *M* = Mean. FFMQ = Five Factor Mindfulness Questionnaire. ISLES = Integration of Stressful Life Events Scale. PTGI = Post Traumatic Growth Inventory. TGI = Traumatic Grief Inventory.

**p* < .01

CHAPTER IV: Discussion

Interpretation of Results

The results of this study provide partial support for the proposed hypotheses. First, dispositional mindfulness positively predicted meaning-making. This finding aligns with Garland and colleagues' (2015) recently proposed *mindfulness to meaning theory* (MMT). While previous research has focused on understanding the therapeutic effects of mindfulness through eliminative mechanisms (e.g. reducing maladaptive cognitive and behavioral patterns), the finding that mindfulness predicts meaning-making provides support for mindfulness also functioning to promote positive emotion regulation processes, which contribute to eudaimonic well-being. In addition, while previous research supporting MMT has primarily focused on the relationship between mindfulness and positive reappraisal (e.g. Hanley & Garland, 2014), this study adds to the existing literature by demonstrating a direct relationship between mindfulness and meaning-making versus meaning-making processes (i.e. positive reappraisal) alone.

Relatedly, meaning-making positively predicted posttraumatic growth. This finding is congruent with the Meaning Reconstruction Theory that posits that a central process of grieving includes the reconstruction of one's worldview that has collapsed with the death of a loved one (Neimeyer, 2000). Moreover, this finding also highlights the potential for grief to catalyze meaning-making processes that lead to distinct psychological growth which surpasses an individual's pre-loss level of functioning.

Contrary to the study's hypothesis, the main effect of mindfulness was not a significant predictor of posttraumatic growth. However, given a significant positive bivariate correlation between mindfulness and posttraumatic growth, this is likely due to multicollinearity with the other study variables being controlled for in the full model. A follow-up confirmatory simple

mediation analysis revealed a significant main effect of mindfulness on posttraumatic growth ($b = .27, p = .03$). More importantly, in the full moderated-mediation model, the interaction between mindfulness and traumatic grief on posttraumatic growth was significant. As predicted, the direct effect of mindfulness on posttraumatic growth was stronger for deaths that were experienced as more traumatic. In fact, the direct effect of mindfulness on posttraumatic growth only became significant at high levels of traumatic grief. Additionally, as predicted, meaning-making partially mediated the relationship between mindfulness and posttraumatic growth. However, contrary the study's hypothesis, the indirect effect of meaning-making on posttraumatic growth became weaker and not significant at moderate and high levels of traumatic grief. The indirect effect was only significant for low levels of traumatic growth.

These results suggest that the therapeutic mechanisms underlying the positive impact of mindfulness on posttraumatic growth in the context of grief likely differ depending on the intensity of the grief. More specifically, at lower levels of grief, mindfulness may indeed exert its therapeutic effect as outlined by MMT, such that more mindful individuals are able to approach the pain of loss from a metacognitive state of awareness which then becomes a fertile psychological space from which an individual can engage in cognitive processes that generate meaning (e.g. positive reappraisal). On the other hand, at higher levels of traumatic grief, individuals may be experiencing strong painful emotions that inhibit cognitive processes. For these individuals, mindfulness may instead exert its therapeutic effects through reducing the likelihood an individual engages in experiential avoidance in response to intense grief. This would be in line with the more common conceptualization of mindfulness as a preventative or eliminative self-regulatory process.

Taken together, the results of this study provide support for a more expansive conceptualization of mindfulness and its underlying therapeutic mechanisms. As Garland et al. (2015) first proposed, conceptualizing mindfulness as a strictly non-evaluative process may miss its broader role in understanding how mindfulness contributes to eudaimonic well-being, or living aligned with deeply held values despite external circumstances. In addition to likely reducing coping strategies that contribute to prolonged and dysfunction grief reactions, mindfulness also appears to both directly and indirectly facilitate a fertile psychological space through which individuals are able to engage with their grief in a way that promotes posttraumatic growth.

Implications

The results of this study have significant implications for the prevention and treatment of grief-related distress. First, results highlight the positive impact that dispositional mindfulness can have on meaning-making specifically in the context of having lost a loved one. This is significant given that grief trajectories have largely been understood as a combination of how significantly a loss invalidates the core beliefs and assumptions on which an individual's self-narrative is based and the success with which an individual is able to find meaning in the grief experience and integrate it into a reconstructed self-narrative (Neimeyer, 2006). Thus, an individual with low dispositional mindfulness may be more prone to problematic grief reactions, which is consistent with the growing body of research demonstrating mindfulness predicts lower levels of negative affect, stress reactivity, and psychopathology (e.g. Iani et al., 2017; Kadziolka et al., 2016; Witkiewitz & Bowen, 2010). Thus, interventions and practices aimed at increasing individuals' dispositional mindfulness could function as a protective factor against prolonged and dysfunctional grief reactions.

Because the death of a loved one is an unavoidable, universal human experience, the potential preventative utility of implementing mindfulness-based interventions extends beyond just for those who are currently bereaved. This may be especially important for individuals who are anticipating a loss, such as those who have loved ones with terminal illness diagnoses. Indeed, previous research has already demonstrated the positive impact of an 8-week MBSR program for patients diagnosed with cancer (e.g. Brown & Ryan, 2003), and future research should explore the impact of mindfulness-based interventions for family members of individuals with terminal illness diagnoses.

Moreover, for those who have already experienced the death of a loved one, mindfulness exercises to facilitate a metacognitive state of awareness prior to engaging in meaning-making processes in therapy may enhance the effectiveness of meaning-making strategies, such as writing exercises. For example, developing trauma narratives is a core component in several evidence-based treatments for trauma, such as trauma-focused cognitive behavioral therapy (TF-CBT; Cohen, Mannarino, & Deblinger 2006) and Cognitive Processing Therapy (CPT; Resick, Monson, & Chard, 2016), and mindfulness exercises prior to and during the narrative process could increase the meaning-making that is made within the narrative. Writing exercise have also demonstrated positive effects in group interventions specifically targeting traumatic grief symptoms (e.g. Kalantari, Yule, Dyregrov, Neshatdoost, & Ahmadi, 2012). For those who have lost a loved one, results suggest that writing exercise and/or trauma narratives may be most effectively approached with mindfulness when symptoms of traumatic grief are low to moderate. On the other hand, when symptoms of traumatic grief are elevated, mindfulness may be less likely to facilitate meaning-making, and thus, the narrative-component may be more effectively implemented when symptoms have lessened.

The results of this study also have implications that go beyond the prevention and treatment of prolonged dysfunctional grief reactions and highlight the potential to develop posttraumatic growth following the death of a loved one. Broadly, this study extends previous research on mindfulness and posttraumatic growth (e.g. Shiyko et al., 2017) by demonstrating a positive impact of mindfulness on posttraumatic growth specifically in the context of grief. More specifically, the conditional direct and indirect effect of mindfulness on posttraumatic growth highlight a nuanced approach to the implementation of mindfulness-based interventions in the context of grief. As mentioned earlier, mindfulness may indeed enhance the effectiveness of writing and narrative-based approaches to trauma and grief through increasing meaning-making; however, the indirect effect of mindfulness on posttraumatic growth through meaning making was not significant at high levels of traumatic grief, suggesting a threshold for engaging in constructive cognitive processes.

Despite this potential threshold for adaptive cognitive processing as reflected in the conditional indirect effect, the direct effect of mindfulness on posttraumatic growth was significant for those who reported high levels of traumatic grief. This poses additional questions relative to how mindfulness facilitates posttraumatic growth through noncognitive means. One possibility is that mindfulness also creates the psychological space needed for somatic processing when the trauma (or grief) is too intense to cognitively process. This is consistent with more recently developed, present and body-focused approaches to trauma treatment. For example, Somatic Experiencing (SE; Levine 2010), is a body-focused therapy that has been used to treat individuals with PTSD through emphasizing body awareness. The theory behind SE is that posttraumatic stress symptoms are a manifestation of an incomplete physiological stress reaction in response to a threatening event (i.e. the trauma). Thus, the goal of SE is to increase the

tolerance of bodily sensations and related emotions associated with the traumatic event through mindfulness-based exercises, so that the stress activation can physically discharge and the interconnected psychological symptoms naturally dissipate. Indeed, in a recent randomized control trial, Brom and colleagues (2017) found significant reductions in both posttraumatic stress symptoms and depression following 15 weekly SE sessions. Although SE has not been empirically assessed specifically in the context of grief, the current study suggests that for those who are experiencing more traumatic grief reactions, focusing on present-moment bodily sensations and emotions may be more effective than techniques emphasizing narration and cognitive processing.

Overall, the results of the study compliment cognitive-behavioral and constructivist models of grief by highlighting mindfulness as an important avenue through which both the avoidance of the pain of loss and a failure to integrate the loss into an individual's pre-existing self-narrative can be targeted to facilitate adaptive grief trajectories. Depending on the severity of traumatic grief symptoms, mindfulness appears to create the psychological space needed to engage in either cognitive or somatic-based processing of the death of a loved in such a way as to lead an individual towards posttraumatic growth.

Limitations and Future Directions

Results and implications of this study should be interpreted in light of several limitations. First, participants were primarily homogeneous, with almost 80% identifying as female and roughly 85% of participants identifying as Caucasian. Although gender was controlled for in the current study and some research has demonstrated no significant differences across genders with regard to stress-related growth in bereaved populations (e.g. Caserta, Lund, Utz, & de Vries, 2009), future research should examine gender as a potential moderator influencing the

mindfulness to meaning framework. Additionally, as Koenig and Davies (2003) have pointed out, grief may be more appropriately conceptualized as a social, rather than individual, response to loss. What it means to recover from a significant loss will be significantly different across cultures. Thus, the generalizability of the current study's results to individuals who do not identify as female and Caucasian remains unknown and should be addressed in future research.

The current study is also inherently limited by its cross-sectional design, which excludes the ability to make casual inferences relative the impact of mindfulness on posttraumatic growth in the context of grief. Longitudinal research studying the impact of mindfulness and meaning-making on posttraumatic growth over time or experimental design studies would strengthen the ability to make casual inferences. Recently, Knowles (2020) conducted a randomized control pilot study and found promising results for the effects of mindfulness and progressive muscle relaxation on grief outcomes for individuals who had lost a spouse or romantic partner; however, posttraumatic growth was not assessed. Although there are several experimental studies that provide support for the casual effects of mindfulness training on PTG (e.g. Shiyko et al., 2017), similar studies that employ experimental designs are needed specifically with bereaved populations. Relatedly, the current study's analysis assumed a linear relationship between mindfulness and posttraumatic growth. As there is research to support a curvilinear relationship between posttraumatic stress symptoms and posttraumatic growth (e.g. Shakespeare-Finch & Lurie-Beck, 2014), it would be an interesting area of study to also examine a curvilinear relationship between mindfulness and posttraumatic growth. It is possible that approaching the pain of loss from a metacognitive state of awareness (as reflective of mindfulness), would only be beneficial in the development of posttraumatic growth up to a certain point.

In addition to addressing the above limitations, future research is needed to further understand the underlying mechanisms through which mindfulness operates as a positive-emotion regulation strategy both directly and indirectly in the context of grief. Although this study's composite score analysis provides valuable information, it would be clinically useful to further understand which components of mindfulness are functioning directly and indirectly to promote posttraumatic growth to be specifically targeted and maximized in treatment. It is possible that different components of mindfulness are operating differently across the indirect and direct effect of mindfulness on posttraumatic growth. For example, it may be that mindful non-reactivity to internal and external stimuli and acting with awareness are predictive of the direct effect while describing and nonjudgment are more prominent in the indirect effect of mindfulness on posttraumatic growth through meaning-making. Overall, a more fine-grained, factor-level analysis would provide valuable nuanced information to guide effective clinical intervention strategies.

In addition to a factor-level analysis of mindfulness effects, future research using different constructs reflective of meaning-making processes would add to the understanding of the ways in which mindfulness facilitates meaning-making and posttraumatic growth. For example, while meaning-making has been a focus of attention within bereavement research, MMT asserts that mindfulness more specifically enables individuals to transform intrusive rumination into deliberate rumination, which ultimately leads to positive reappraisal (Garland et al., 2015). Although positive reappraisal has been identified as a key component of meaning-making within the Meaning Reconstruction Theory of grief (Gillies & Neimeyer, 2006; Neimeyer, 2001), future research should directly study the impact of mindfulness on rumination and positive reappraisal specifically in the context of grief. Moreover, given the finding that at

high levels of traumatic grief, only the direct effect of mindfulness on posttraumatic grief is significant, future research should explore possible underlying mechanisms of this direct effect that are not related to cognitive meaning-based processes. Possible targets could include experiential avoidance, bodily awareness, self-compassion, and positive affect.

Lastly, as time has been identified as an important factor in both bereavement studies and research on posttraumatic growth (e.g. Taku et al., 2009), future studies designed to explore the moderating impact of time on both the direct and indirect effect of mindfulness on posttraumatic growth would also help to guide clinical interventions.

Conclusion

The death of a loved one is a painful, but universal human experience. Despite its universality, the impact of a significant loss on an individual can have profound effects which follow differing but overlapping trajectories. The current study builds upon current theoretical models of bereavement by highlighting the multidimensional utility of mindfulness in facilitating adaptive responses to the death of a loved one. As proposed, results support the hypothesis that individuals higher in dispositional mindfulness will inherently be more prone to experiencing the optimal psychological space in which grief can dialectically exist as both painful *and* meaningful—a tension of opposites that appears to give rise to posttraumatic growth.

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